

## WHAT IS CLAIMED IS:

1. A process for the preparation of water dispersible nanoparticles comprising mixing a solution of a surfactant in a polar solvent with a solution of hydrophobic nanoparticles in an organic solvent.  
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2. The process of claim 1, further comprising agitating the mixture comprising the polar surfactant dissolved in the polar solvent and the solution of hydrophobic nanoparticles in the organic solvent.  
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3. The process of claim 2, wherein the mixture is agitated for at least approximately 30 minutes.
4. The process of claim 2, wherein the mixture is agitated for a period of approximately 30 minutes to approximately 60 minutes.  
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5. The process of claim 1, wherein the hydrophobic nanoparticles comprise metal colloidal particles.
- 20 6. The process of claim 1, wherein the hydrophobic nanoparticles comprise gold, silver, nickel, platinum, palladium, ruthenium or mixtures thereof.
7. The process of claim 1, wherein the hydrophobic nanoparticles comprise semiconductor nanoparticles.  
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8. The process of claim 1, wherein the hydrophobic nanoparticles comprise cadmium sulphide, cadmium selenide, cadmium telluride, gold sulphide, silver sulphide, zinc sulphide, zirconia, titania, and mixtures thereof.

9. The process of claim 1, wherein the surfactant comprises sodium octylsulfate, sodium decylsulfate, sodium dodecylsulfate, sodium dodecanoate, aerosol OT, dodecyl trimethyl ammonium bromide, hexadecyltrimethyl ammonium bromide, didecyldimethyl ammonium bromide, dihexadecyldimethyl ammonium acetate, dimyristoyl-lecithin, 5 dipalmitoyl-lecithin, distearoyl-lecithin, dodacenedimethyl propanesultaine, dodecyldimethyl amine oxide,  $\beta$ -d-decylglucoside, or mixtures thereof.
10. The process of claim 1, wherein a concentration of the surfactant in the polar medium is approximately 2 times to approximately 10 times greater than a concentration of the 10 hydrophobic nanoparticles in the organic solvent.
11. The process of claim 1, wherein the polar solvent comprises water.